

Application Number: 09/992,788
 Response to Office Action of March 23, 2005

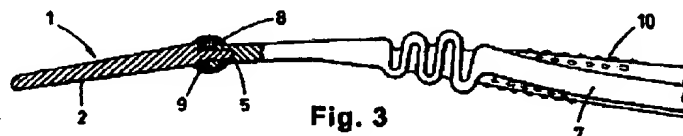
REMARKS

An Office Action was mailed on March 23, 2005. Claims 1-10 are pending. Claims 9-10 are allowed.

REJECTIONS UNDER 35 U.S.C. § 102 and §103

Claims 1 and 7 are rejected under 35 U.S.C. §102(b) as being anticipated by Brice (U.S. Patent 5,499,421), while claims 1 and 5 are rejected under 35 U.S.C. §102(b) as being anticipated by Kramer (U.S. Patent 6,066,282). Claims 2-4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over both Brice and Kramer in view of U.S. Patent No. 6,682,620 to Gartland et al. Claims 5 and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Brice, while claim 5 is also rejected under 35 U.S.C. §103(a) as being unpatentable over Kramer. Claim 6 is also rejected under 35 U.S.C. §103(a) as being unpatentable over Bonfiglio (EP 0 557 537). Applicants respectfully request that these rejections be reconsidered and withdrawn.

With respect to all rejections based on Kramer, Applicant has incorporated claim 5 into claim 1 to require that at least one of the preformed toothbrush components is elastomeric, with such preformed toothbrush components being selected from the group consisting of at least a part of a head, a neck and a handle. The elastomeric material (9) in Kramer is neither preformed nor a defined component of the toothbrush as illustrated in FIG. 3 of Kramer:



Instead, the elastomeric component (9) or mass (9) is injection molded around the joint of the first and second engagement parts (4,8) as stated in column 5, lines 45-55 of Kramer. The Examiner statement prior to the Conclusion section of the Office Action of March 23, 2005, that "Kramer teaches that the components may be preformed and then fused together by means of an elastomeric material" bears no relationship to the present claims. Instead, claim 1 and the claims

Application Number: 09/992,788
Response to Office Action of March 23, 2005

dependent therefrom require that the preformed components of the present invention are welded together using hot-air welding, with one of the preformed components being elastomeric as set forth in the presently amended claims. Accordingly, Applicant respectfully requests that the §102 rejections based on Kramer be withdrawn.

With respect to all rejections based on Brice, Applicant has further incorporated claim 6 into claim 1 to now require a hot-air welding of preformed components, at least one of which is elastomeric (from claim 5 as noted above). Brice only teaches the ultrasonic or vibration welding of preformed components as set forth in column 11, lines 34-57. Ultrasonic or vibration welding is commonly used for thermoplastic materials, and in particular toothbrush applications. However, it is generally not accepted in the trade to ultrasonically weld elastomers because an elastomer does not respond to ultrasonic or vibration energy in the same manner as a non-elastomeric thermoplastic material. Reference is made to the following chart from the DSM Engineering Plastics site (http://www.dsm.com/en_US/html/dep/welding.htm), which illustrates that welding thermoplastic elastomers by vibration welding, spin welding or ultrasonic welding is problematic:

Application Number: 09/992,788
Response to Office Action of March 23, 2005

Welding techniques	
Advantages	Disadvantages
Vibration Welding	
<ul style="list-style-type: none"> - cost-effective - short cycle times - large batch sizes possible to - melted polymer not exposed to open air - strong bond 	<ul style="list-style-type: none"> - welding thermoplastic elastomers is problematic - product is exposed to vibrations during welding - much flash is formed - 3D-contours cannot be welded
Spin Welding	
<ul style="list-style-type: none"> - efficient, simple process - simple equipment - short cycle times - large batch sizes possible - melted polymer not exposed to open air - strong bond 	<ul style="list-style-type: none"> - welding thermoplastic elastomers is problematic - only circular contours can be welded - 3D-contours cannot be welded - relative position of the parts cannot be adjusted
Ultrasonic Welding	
<ul style="list-style-type: none"> - cost-effective - very short cycle times - large batch sizes possible - melted polymer not exposed to open air 	<ul style="list-style-type: none"> - welding thermoplastic elastomers is problematic - product is exposed to vibrations during welding - restricted to small and medium-size parts
Hot-Plate Welding	
<ul style="list-style-type: none"> - cost-effective - large batch sizes possible - suited for soft materials (thermoplastic elastomers) - no electrical fields, no mechanical vibrations - strong bond 	<ul style="list-style-type: none"> - long cycle times - molten polymer exposed to open air (oxidation)
Laser Welding	
<ul style="list-style-type: none"> - short cycle times - no or hardly any flash is formed - ideally suited for miniaturization and very large products - thermoplastic elastomers can be welded - small heat-affected zone, built-in stresses not large - sensitive parts close to the weld not affected - no electrical fields, no mechanical vibrations - small series and mass production possible - strong bond 	<ul style="list-style-type: none"> - one part must be transparent, other part must be absorbent
Radio Frequency Welding (or Dielectric or High Frequency Welding)	
<ul style="list-style-type: none"> - suited for high polarity polymer films like PVC, EVA and polyurethane 	<ul style="list-style-type: none"> - only high polarity plastics can be welded; other plastics can only be welded using polar additives - not well suited for parts containing electromagnetic sensitive items (metal inserts)
Induction Welding (or Electromagnetic Welding)	
<ul style="list-style-type: none"> - short cycle times - 3D weld surfaces are possible - thermoplastic elastomers can be welded - can be used for very highly filled materials - welding process is reversible (repair, recycling) - tolerances on part dimensions not tight 	<ul style="list-style-type: none"> - electromagnetic welding gasket material is required - not well suited for parts containing electromagnetic sensitive items (metal inserts)
Resistance Welding	
<ul style="list-style-type: none"> - simple and fast process, minimal equipment requirements - very large products can be welded 	<ul style="list-style-type: none"> - heating wire remains in part after welding, adding to process costs and possibly reducing welding strength
Hot Gas Welding	
<ul style="list-style-type: none"> - suitable for very large products - suitable for field assembly, repair and prototypes - inexpensive, simple equipment, generally portable 	<ul style="list-style-type: none"> - weld quality is operator dependent - often a limited weld strength - slow process - weld remains visible

While Brice does not teach a hot-air weld as required by the amended claims, Brice also fails to teach or reasonably suggest the hot-air welding of thermoplastic components, at least one of which is elastomeric. Because the Brice disclosure is limited to ultrasonic or vibration welding, one skilled in the art would not look to Brice and would not be taught by Brice to (a) use a hot-air weld and/or (b) weld a preformed component that is elastomeric.

Similarly, Applicant reiterates its previous arguments with respect to Bonfiglio in that Bonfiglio fails to teach or reasonably suggest an aesthetically acceptable toothbrush

Application Number: 09/992,788
Response to Office Action of March 23, 2005

manufactured from preformed components comprising the toothbrush formed from at least two preformed thermoplastic toothbrush components, which are welded together by heating each respective component with hot air to form a toothbrush having acceptable peel resistant strength; said preformed toothbrush components being selected from the group consisting of at least a part of a head, a neck and a handle, and combinations thereof, said preformed toothbrush components having a different melt flow rate from each other and wherein at least one of said preformed toothbrush components is elastomeric, as currently claimed.

Bonfiglio merely teaches a method of plastics welding of thermoplastics using a pre-heated plate, hot air or gas blower, which is simply a generalized disclosure of one type of hot air welding method. The Examiner asserts that it would have been obvious, in light of Bonfiglio, to use hot-air welding on Brice's toothbrush components. However, as noted earlier, the Brice disclosure is limited to ultrasonic or vibration welding, which means that Brice does not contemplate the use of an elastomeric preformed component. Thus, even if one skilled in the art would be motivated by Bonfiglio to use hot-air welding in Brice, there is no motivation in Bonfiglio to alter or modify the underlying character or structure of the Brice preformed components. Therefore, the only way to modify Brice to result in a hot-air welded elastomeric toothbrush component would be to apply improper hindsight.

Applicant respectfully disagrees with the Examiner that the cited art, in combination teaches or suggests the claimed invention. Applicant further submits that a prima facie case of obviousness has not been successfully established. In addition, in order to establish a case of prima facie obviousness there must also be shown a motivation to combine the teachings of the cited references, namely Bonfiglio and Brice. To that end, some suggestion of the desirability to combine the references must be found and demonstrated in the references. This burden cannot be satisfied by simply asserting that the modification would have been well within the ordinary skill of the art because the Bonfiglio method is inexpensive and does not distort the aesthetic appearance of the components.

As the CAFC stresses for a § 103 rejection to stand, the Examiner is required to show **with evidence** the motivation, suggestion or teaching of the desirability of making the specific

Application Number: 09/992,788
Response to Office Action of March 23, 2005

combination at issue. That evidence is required to counter the powerful attraction of a hindsight-based obviousness analysis. See, for example, *In re Lee*, 277 F.3d 1338, 1343, 61 U.S.P.Q. 2d 1430, 1433 (Fed. Cir. 2002) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references"). It is respectfully submitted that this involves more than a mere bald assertion that it would be obvious to combine the cited references. With respect, and for reasons noted above in connection with the §102 rejection in view of Brice, the Examiner has failed to indicate why one of ordinary skill in the art would be motivated to combine the teachings of Bonfiglio and Brice to arrive at the claimed invention. *In re Lee* requires that the record must state with particularity all the evidence and rationale on which the PTO relies for a rejection and sets out that it is necessary to explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.

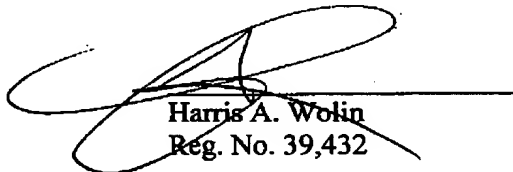
Under *Lee*, the PTO must state in writing **the evidence** on which it bases its rejection. With respect, the present office action falls short of this requirement. The Examiner's evidence or reasoning related to cost and aesthetic distortion ignores the clear and unequivocal teaching found in Brice regarding the method of welding and the welded components disclosed therein. Incorporating the Bonfiglio method into the Brice teaching would alter the underlying invention, as it would require the Brice toothbrush to be formed from components that are not within the scope or teaching of Brice as clearly discussed above. For the foregoing reasons, reconsideration is respectfully requested.

An earnest effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that claims 1-4, 7 and 9-10, consisting of independent claims 1 and 9 and the claims dependent therefrom, are in condition for allowance. Passage of this case to allowance is earnestly solicited. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Application Number: 09/992,788
Response to Office Action of March 23, 2005

Any fee due with this paper may be charged to Deposit Account No. 03-2455. Any overpayment made be credited to Deposit Account No. 03-2455.

Respectfully submitted,



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